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RELATIONSHIP OF STRESS LEUKOCYTE FUNCTION AND ACUTE
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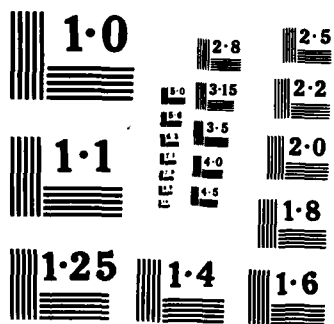
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Report 4

RELATIONSHIP OF STRESS, LEUKOCYTE FUNCTION,
AND ACUTE ULCERATIVE GINGIVITIS
FINAL SUMMARY REPORT

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Steven Cohen-Cole and Katherine Kirk

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) > Our study has resulted in additional evidence for a role correlating stress, emotional disorders and depressed leukocyte function in the etiology of ANUG. The ANUG patients appear to be suffering from anxiety and depression which may be correlated by a tendency for emotional disorders. Also it appears as though increased susceptibility to the causative microorganisms may be based on decreased leukocyte functional capabilities. The onset of an acute infectious illness may be directly related to depressed white blood cell functions brought on by emotional stress in "receptive" patients. Originator supplied keywords include:		

Summary:

Our study has resulted in the generation of significant and unique findings. The ANUG patients appear to be suffering from anxiety and depression which may be correlated by a tendency for enduring psychologic disturbances. Also it appears as though increased susceptibility to the causative microorganisms is based on decreased leukocyte functional capabilities. The occurrence of psychosocial stress in patients with enduring characteristics of psychologic disorders correlated with depression of host defense mechanisms, suggests strongly a role for these factors in increased susceptibility to a specific infectious disease (ANUG).

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Foreword:

This is the final summary report, and I am able to report that we have successfully completed assessment of 100 ANUG patients and 100 matched controls. We have accumulated a wealth of data and analysis of this data has resulted in empirical information about ANUG and possibly other stress-related infectious diseases. It also has suggested some new avenues for further investigation which may prove fruitful in our understanding not only of ANUG, but also other stress-related diseases and host-related defense mechanisms. For the protection of human subjects the investigator(s) have adhered to the policies of applicable Federal Law 45CFR46.

Body of Report:

Some of our findings were:

- (1) Most of the patients were between 17-25 years of age. The youngest patient was 14 years old and the oldest was 37 years old. The mean age was 23.9 years old.
- (2) All of the patients with ANUG with the exception of one were caucasian, (99:1). This suggests that there may be a genetic component and this may be worth investigating. We feel that this may be an important uncovered component and was an unexpected but consistent finding.
- (3) The differential white blood cell counts were discontinued after the 1st year since all that were tested were within the normal range for all patients as well as controls.
- (4) The data from the psychologic testing instruments indicated that:
 - (a) Very Recent Life Changes - ANUG patients showed a significant difference in the subjective magnitude of recent life events, with patients rating their life changes as more severe.
 - (b) Dohrenwend's Life Events Scale - Most significant differences between patients and controls occurred in the absolute number of reported negative life events and also the magnitude of the negative events. ANUG patients reported significantly more recent negative life events of greater perceived impact than did the controls.
 - (c) Social Support - The early trend for patients to rate social support lower than controls did not continue and so there was little or no difference between patients and controls.
 - (d) Spielberger State/Trait Anxiety Inventory - Indicated a highly significant increase of State Anxiety in ANUG patients at T1 (upon presentation with the disease. This increase was not significant at T2. Also the Trait Anxiety of patients was significantly higher at T1 compared to controls, and also at T2, suggesting that the trait of anxiety was an enduring characteristic and was not due to the acutely painful disease.
 - (e) General Health Questionnaire - This test correlates very well with diagnosis of emotional disorders by psychiatrists. When we use the suggested range of score of 5.0 or more on this scale we found that many more patients compared to controls scored in the emotionally disordered range.
 - (f) Center for Epidemiological Studies Depression Inventory indicated that a significantly greater number of the patients scored in the depressed range compared to the controls.
 - (g) Minnesota Multiphasic Personality Inventory which was tested at T2 (after resolution of the disease) indicated that patients had significantly elevated scores on most of the scales. The exceptions were the gender and the veracity scales.

- (5) Serum Cortisol Levels - No significant differences between patients and controls.
- (6) Urinary levels of Endocrine Markers of Stress - No significant differences between patients and controls. Other endocrine assessments showed no differences with respect to growth hormone, prolactin, total T4, total T3 and urine free catecholamines.
- (7) Blood Leukocyte Function Assays:
 - (a) Phagocytosis - Assessed by Stimulated NBT test - There was a significant mean average depression of Anug patients compared to controls.
 - (b) Leukotaxis - Assessed with modified Boyden changer using a filtrate of E. Coli as the attractant. There was a significant average depression in ANUG patients compared to controls after correcting for non-stimulated migration.
 - (c) Lymphocyte function was assessed by response to non-specific mitogens. With use of Con A, PHA, and PWM, there were no significant differences in ANUG patients compared to controls.

In summary, on the basis of this data, it appears that several psychosocial variables are strongly associated with ANUG. Also, some of the leukocyte immune functions, namely PMN chemotaxis and phagocytosis, were depressed in ANUG patients when compared to controls. The extreme paucity of black patients with ANUG has continued through three years of the study and is highly suggestive of an important genetic component to this disease which is worthy of further exploration. These findings, to date, suggest that genetic, psychosocial, and immune variables may all play a role in the pathogenesis of this illness. We have designed a prospective study to help clarify the relative importance and relative independence of these various factors.

As a result of this work to date five reports have been made to National Meetings.

1. American Association of Psychosomatic Medicine
2. International College of Psychosomatic Medicine
3. American Academy of Periodontology
4. International Association of Dental Research
5. International Association of Dental Research

The above abstracts have been included with this report. Several reports have also appeared in the medical literature and other media, these too have been included.

In addition, 2 manuscripts have been published and one more is in press. These have also been included with this report. Also, an additional manuscript is being prepared for submission to a journal for publication which encompasses the results and conclusions of the entire study.

Upon acceptance it will be forwarded to you.

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